PAT 62246W-2

CLAIMS AS ALLOWED:

1. A method for thermally liberating an intracellular metabolite from a biological cell, comprising:

(a) culturing the cell in a culture medium at a culturing temperature T_M(°C); and

(b) then conditioning the cell at a conditioning temperature T_K(°C) for a conditioning time t_h (sec);

wherein T_K, T_M, and t_h are related by the formula

$$t_h \cdot (T_K - T_M) = WE$$

wherein WE represents a "thermal equivalent" (K• sec), and is in the range 90-150 K• sec, and

wherein the conditioning temperature T_K is 80-95°C.

2. (cancelled)

3. A method according to claim 1, wherein the conditioning temperature T_K is always below the boiling point of the culture medium.

4. A method according to claim 1, wherein the conditioning time t_h is 1.3-600 sec.

5. A method according to claim 1, wherein the culturing temperature T_M is 26-42°C.

6. (cancelled)

7. A method according to claim 1, wherein the biological cell is a gram-negative prokaryote or a eukaryote, and the thermal equivalent WE is 110 ± 20 K• sec.

8. A method according to claim 1, wherein the biological cell is a gram-positive prokaryote, and the thermal equivalent WE is 130 ± 20 K• sec.

9. A method according to claim 1,

wherein the culture medium is a liquid, which liquid medium containing the biological cell is flowed into a capillary for conditioning and,

wherein the conditioning occurs while the cell is disposed in a temperature-controlled segment of the capillary at the conditioning temperature, T_K, for the conditioning time, t_I.

10. A method according to claim 9, wherein the culture medium is flowed into the temperature-controlled segment of the capillary at a volumetric flow rate of 0.5-12 mL/sec.

11. A method according to claim 1, wherein the culturing takes place in a culturing vessel, and the thermal conditioning takes place in a receiving vessel, into which the culture medium containing the biological cell has been transferred.

12. The method of claim 1, whereby the metabolite is liberated from the biological cell, further comprising:

(c) isolating the liberated metabolite from the culture medium.

13. The method of claim 1, whereby the metabolite is liberated from the biological cell, further comprising:

(c) quantitatively determining the amount of liberated metabolite in the culture medium.

14. The method of claim 1, whereby the metabolite is liberated from the biological cell, further comprising:

(c) qualitatively detecting the liberated component material in the culture medium.

15. A method according to claim 1, wherein the intracellular metabolite is selected from the group consisting of amino acids and their derivatives, amines and their derivatives, carboxylic acids, alcohols, aldehydes, ketones, phosphate esters other than nucleic acids, nucleic acids and congeners, sugars and congeners, lipids, steroids, fatty acids, vitamins, coenzymes, and inorganic ions.

16-21. (cancelled)

22. The method of claim 1, wherein T_M is 30-38°C.

23. The method of claim 1, wherein t_h is 1.3-180 sec.

24. The method according to claim 11, wherein the receiving vessel is a sample collection vessel.